TRANSACTIONS

OF THE

NEW YORK SURGICAL SOCIETY.

Stated Meeting, May 25, 1904.

The President, HOWARD LILIENTHAL, M.D., in the Chair.

TETANUS (ACUTE) CURED BY INTRANEURAL AND INTRASPINAL INJECTIONS OF ANTITOXIN.

DR. JOHN ROGERS, JR., presented a boy, ten years of age, who on April 25, 1904, stepped on a rusty nail, inflicting a wound in the sole of the right foot. The injury was regarded as unimportant, and was not treated by a physician. On the morning of May 2, the boy complained of a stiff neck and back, and experienced a choking sensation. When he was brought to the hospital, at ten o'clock that morning, there was trismus and *risus sardonicus*. An hour after his admission, the patient was given twenty cubic centimetres of tetanus antitoxin subcutaneously in the lumbar region, and at two o'clock in the afternoon a second dose was similarly administered.

The next morning, May 3, there was distinct opisthotonus, rigid jaws, and every indication of acute tetanus. This subcutaneous dosage had not the least effect. The patient was now transferred to Dr. Rogers's care, and at 11 A.M., under chloroform anæsthesia, he exposed the anterior crural and sciatic nerves on the right side, and injected into each about half a drachm of the tetanus antitoxin prepared by the New York Health Department. At the same time, through a lumbar puncture, he injected a drachm and one-half of the antitoxin directly into the cord, working the point of the needle around until the patient's legs were observed to twitch; in other words, intentionally wounding one or more of the nerves of the cauda equina.

On the following morning, May 4, the boy was a little worse. He had had four convulsions during the night, each lasting about ten minutes. The opisthotonus was very marked, the patient was weak and cyanotic, and his condition was extremely bad. The case, apparently, was hopeless. He was again chloroformed, and through a long needle a drachm and one-half of antitoxin was injected into the spinal cord between the second and third dorsal vertebræ. That night he had no convulsions and slept quietly, and the following morning he was able to open his jaws a little. He was also less rigid, and the cyanosis had disappeared. On Friday he was not quite so well. He had had no further convulsions, however, but his jaws were more tightly closed and the rigidity was more marked than on the previous day. He claimed, however, that he felt better. Another injection of a drachm and a half was made by lumbar puncture, and the point of the needle worked back and forth in the substance of the cauda equina. This procedure produced some hæmorrhage from the cord, but there were no ill effects. The patient passed a good night, and on the following day, although he was able to separate his jaws fully a quarter of an inch, another injection was made in the lumbar region as a precautionary measure. His further recovery was uneventful, with the exception of a severe, bluish-red dermatitis which developed on May 9; this involved the trunk and legs, and gradually subsided.

In addition to the above treatment, the initial wound on the sole of the foot was opened and swabbed with tincture of iodine. Pure cultures of the tetanus bacilli were obtained from the secretions of this wound, as reported by Dr. L. Smith, bacteriologist at the Cornell Medical College. The increase in the severity of the symptoms on the second day was probably the result of failure to expose the obturator nerve and inject it with antitoxin as well as the sciatic and anterior crural. The obturator nerve was forgotten, and its charge of toxin was not stopped from entering the cord.

Dr. Lilienthal said he understood that the remedy used by Dr. Rogers was a true tetanus antitoxin, and he raised the question as to whether an antiseptic of any form, for example, lysol, which had been used in cerebrospinal meningitis with marvellous results, might not be worth trying in case the antitoxin was not obtainable.

DR. ROGERS, in reply to a question, said the injections into the anterior crural and sciatic nerves were made directly into the substance of the nerve, so that they swelled up to about the size of the finger. He stated that prophylactic injections of the antitoxin had been reported by several authorities, apparently with good results. Experimental investigations had shown that the tetanus poison was carried through the muscle end of the nerve apparatus; it could only travel in the motor nerves and in a centripetal direction, and the length of time it took to reach the cord was proportionate to the length of the nerve it had to traverse. On this theory, a prophylactic dose of the antitoxin could be given so as to reach the cord before the toxin.

Dr. Rogers said that various antiseptics had been tried more or less unsuccessfully in the treatment of tetanus, although none of them, so far as he knew, had been injected directly into the nerve tissue. The tetanus antitoxin, as prepared by the New York Health Department, was preserved by chloretone; but the percentage of this antiseptic was so small that it probably played no part in the curative action of the antitoxin.

DR. CHARLES H. PECK said the case shown by Dr. Rogers represented a type of tetanus that usually ended fatally, and the result in this instance was certainly very gratifying. In the case shown by Dr. Rogers a month ago, where recovery had followed the same method of treatment, the symptoms had not been so severe. The speaker asked Dr. Rogers if he would select the facial nerve for injection in a case where the point of infection was on the head or face.

DR. ROGERS said he thought it would be entirely feasible, in such a case, to inject the antitoxin into the facial nerve in the region of the parotid, and at the same time into the cervical cord. The mode of death from tetanus was by tetanic spasm of the respiratory centre ,which was some little distance from that of the facial nerve. The speaker said that in a case of cephalic tetanus he would not hesitate to inject the antitoxin directly into the cervical cord.

REMARKS ON APPENDICITIS BASED ON AN ANALYSIS OF 219 CASES.

DR. PARKER SYMS read a paper with the above title, for which see page 727.

DR. LILIENTHAL said he was in thorough accord with the statements made by Dr. Syms. Even if the results of Dr. Ochsner's series of cases treated by the starvation method were remarkable, it did not follow, in the speaker's opinion, that the method was a proper or surgical one. The more he saw of appendicitis, the more thoroughly convinced he was that it was an operative condition whenever the diagnosis could be made. The same rule that Dr. Syms carried out at Lebanon Hospital was also followed by Dr. Lilienthal at Mount Sinai. In cases where the symptoms were evidently receding at the time of the patient's admission to the hospital, an operation was occasionally delayed from hour to hour, but the operation was never postponed, in the hope that the symptoms might recede. An operation was considered much safer than the starvation or any other method.

Dr. Lilienthal said that on his Surgical Division at Mount Sinai he, together with the Adjunct Surgeons, Drs. Elsberg and Wiener, had operated on 455 cases of appendicitis since 1899, with a general average mortality of 10 per cent. During 1902–3 they had operated on 140 cases, with nine deaths, a little over 6 per cent. Of these 140, about thirty-eight were interval cases and the others were acute, and often desperate. The speaker said that was the way in which he divided his cases. He did not quite agree with the division made by the reader of the paper of the cases of general and diffuse peritonitis, for this reason: A general peritonitis might be of a comparatively mild and aseptic type. A tuberculous peritonitis, for example, might be general in character and still not prove fatal. So it was with a streptococcus or staphylococcus peritonitis, or one due to some other pathogenic organism. It was not so much whether the peritonitis was general, or merely diffuse, and not perhaps involving every part of the peritoneum, as it was the character of the infection, and the idiosyncrasy of the individual who was diseased. Some persons could not withstand infection well, perhaps dying from a local peritonitis, while others did not succumb to very severe and almost fulminant forms of peritoneal infection.

Dr. Syms, in his paper, made the statement that every death after operation for appendicitis was a public calamity. Perhaps it was just as well, Dr. Lilienthal said, to put this the other way, and say that every case of appendicitis that got well without an

operation was a public calamity, because such cases induced the public to believe that an operation was unnecessary, and lulled them into a sense of false security.

Dr. George D. Stewart said that in his work at Bellevue and St. Vincent Hospitals he had been treating cases of appendicitis along the same lines as those followed by Dr. Syms, and that the series of cases reported by Dr. Ochsner had not induced him to change his method. Various so-called conservative methods of treating appendicitis had been advocated from time to time, but the speaker said he was in entire accord with those who looked upon it as a surgical condition. Not long ago, a medical man in the French army proved by the statistics of an enormous number of cases of appendicitis that better results were obtained by medical than by surgical treatment. Such statistics, however, were practically of little value.

Not long ago, Dr. Stewart said, a certain surgeon in this city had reported a number of cases of general peritonitis following appendicitis upon which he had operated, with no mortality. Such results were rather surprising, and raised some doubt as to the correctness of the diagnosis. It was well known that general peritonitis in appendicitis was really very rare, owing to the peculiar anatomical relations of the parts. A collection of pus might fill the pelvis and run up the right side of the abdomen as far as the liver, but the cæcum, the ascending colon, and a wedge of greater omentum acted as a natural barrier and prevented it from spreading to the left side. Even through a wide incision such a condition might appear to the operator to be one of general peritonitis, so far as could be told, while as a matter of fact the infection might not have involved the left side of the abdomen at all.

Dr. Stewart said that his rule in dealing with appendicitis was as follows: If the case was a severe one, operate at once. If it was a mild one and not getting worse, watch it carefully for a short time; if it gets worse, operate; if the symptoms remain stationary, do not delay the operation too long. In other words, he advised operation in every case unless the symptoms were distinctly improving when the patient came under his care.

Dr. Rogers said that most of the surgeons in this city were probably in close accord with the views expressed by Dr. Syms and those who had discussed his paper. The only difference of

opinion that might exist was in reference to the use of drainage. He had observed that the younger surgeons were much more inclined to dispense with drainage than the older men.

Dr. Benjamin T. Tilton said that his rule in operating for appendicitis was practically the same as that outlined by Dr. Stewart. As regards drainage of the abscess cavity, he now favored the use of a small wick, or a piece of rubber tissue, in preference to extensive packing, which plugged the cavity and necessitated a painful after-dressing. As far as flushing was concerned, he thought it should be avoided excepting when the exudate was limited to the pelvis.

As regards the proper time to operate, Dr. Tilton said he thought an early operation was always advisable unless the patient was undoubtedly going on to recovery. In cases of abscess formation, simply opening the abscess was in many instances the safest procedure. The speaker said he could recall a number of cases where this was done and there was absolutely no return of the trouble. It was ofttimes undoubtedly a life-saving measure, and he thought it should be more commonly done, especially in cases where the surgeon was called in to operate under inopportune circumstances.

Dr. John A. Hartwell said that in suppurative cases of appendicitis the starvation method of treatment recommended by Dr. Ochsner might prove valuable after operation. In such cases, where the feeding was done per rectum and the patient was only given a little ice by the mouth, the speaker said he had been struck by the lack of abdominal distention, and the more rapid subsidence of all the acute symptoms.

Dr. Peck said that in cases of appendicitis with abscess formation, especially in the retrocæcal type of abscess, where the appendix was often destroyed, it was well, he thought, to follow the suggestion made by Dr. Tilton, and simply open the abscess, in those cases where the appendix could not be easily shelled out. The rest of the peritoneal cavity should be walled off and protected before opening the abscess. When there was no well-defined abscess and the appendix was buried in a mass of recent adhesions, the speaker said he depended a good deal on the sense of touch in delivering the appendix, and did not, as a rule, wall off the field with pads. The operative field could then be cleaned by either sponging or flushing. In cases where the exudate was

spread out over a wide area, the cleansing could be done with less trauma by flushing than by swabbing.

Dr. Peck said it was often difficult to distinguish between a diffuse and a general peritonitis. Recovery was not infrequent after a peritonitis involving the entire pelvis and right side of the abdomen. The entire abdomen, as Dr. Stewart said, was comparatively rarely involved in the process.

The speaker said he favored the use of a small drain down to stump or in abscess cavity. He was becoming convinced of the fact that a small drain was equally if not more effective than a large mass of gauze.

Dr. John D. Rushmore said that in many cases of appendicitis the surgeon had no choice as to the time of operation. The family physician was usually first called, and if, after three or four days' treatment by various methods, the symptoms became aggravated or were not relieved, the surgeon was sent for and had to accept the situation as he found it. Personally, Dr. Rushmore said, he believed in operating early: he considered the risk of waiting to be infinitely greater than that of operating. It would prove a valuable object lesson to the physician to witness more of these operations, and see how far advanced the condition was before surgical aid was invoked. Many physicians, apparently, fail to recognize a tumor in the abdomen, even after it has become quite perceptible to the surgeon.

The onset of an attack of appendicitis was usually figured from the time when the pain begins, and this Dr. Rushmore thought was a grave error. The actual onset of the disease in many cases probably antedated the pain by days, and perhaps weeks. He compared the changes that took place in the appendix in appendicitis to those that occurred in the small intestine in typhoid fever. In an attack of typhoid fever, no one would be able to locate an ulcer of the intestine, although present for many days, and it would be manifestly improper, when rupture occurs, to call that day the first day of the disease. In appendicitis we have an analogous condition.

It was not unusual to see a case of appendicitis run its course, and then, after the patient had apparently recovered, and all the symptoms had abated, to find, on operation, a deep ulcer of the appendix on the point of rupturing. These conditions occurred as the result of the so-called conservative or expectant treatment,

and many of them after the starvation method had been employed for three or four days. The speaker recalled a case upon which he had operated recently, where the only symptom was abdominal tenderness. The pulse was 72, the temperature normal; there was no tension; no tumor. Still, upon operation, the mucous membrane of the appendix was found to be gangrenous from the root nearly to the tip. The so-called interval cases of appendicitis were frequently found not to be interval cases at all; the appendix was found to be kinked or strictured or ulcerated.

Dr. Syms said there was a smouldering tendency on the part of many physicians to seek some excuse for delaying operative interference in appendicitis. In 1901, at a meeting of the Surgical Section of the American Medical Association, no less an authority than Dr. Senn, of Chicago, made the assertion that there was entirely too much operating in appendicitis, and stated that 20 per cent. of all cases of appendicitis would recover without an operation. This statement was met by a storm of applause, which showed the strong sympathy with such dangerous views even in a surgical gathering of that kind, and it was not until the surgeons had rallied, and Dr. John B. Murphy, of Chicago, had called attention to the fact that Dr. Senn's statement implied a terrible mortality of 20 per cent. without operation, that the meeting came to its senses, and realized that no statistics could be based on the number of recoveries without operation. A single patient may have recovered from ten or a dozen attacks of appendicitis, and these recoveries may figure in various statistics, but without operation, such a case may go on to inevitable mortality. Ochsner compared his series of cases treated by the expectant method with a similar number treated by Deaver by operation, and showed that, according to his figures, his results were better than those of Deaver. His conclusions, however, were open to the objection that in Deaver's cases the exact condition was actually observed, while in his own it was not. Surgery discloses the exact condition present at the time of operation.

Some years ago, Dr. Syms said, he wrote a paper on this subject, entitled, "When to Operate," in which he attempted to classify the cases that would recover without operation, and which could be safely treated expectantly, and those that would require operation. To-day he had come to the conclusion that there was only one thing to do when the diagnosis was made, and that was

to operate. This rule might be modified, perhaps, under special conditions, but not otherwise. Given an acute inflammatory condition in the abdomen, there was only one way to ascertain its extent and seriousness, and that was to operate. In no other way could the exact condition of affairs be learned.

Dr. Rushmore said he did not think that statistics comparing medical and surgical cases of appendicitis were of much practical value. The cases that recovered under the starvation method were probably picked cases. The only proper comparison between medical and surgical statistics is afforded by having a certain number of cases treated from start to finish by the physician and the surgeon, and not to have the cases turned over to the surgeon after the ideal time for operation has passed. And we must also remember that barring those few cases of appendicitis terminating in suppuration and that open into the intestines, bladder, etc., if the surgeon did not interfere, the case would almost always terminate fatally, and would be fairly counted as a medical death.

Dr. Syms called attention to the fact that all of Dr. Ochsner's cases were subsequently operated on.

Dr. Lilienthal said that in spite of that fact they were picked cases, and if they had gotten worse under the starvation method of treatment, they would probably have been operated on without delay.